

# **Implementing a Comprehensive Team Project in an Introductory Finance Class**

Gregory K. Faulk  
Belmont University

Joseph C. Smolira\*  
Belmont University  
School of Business  
1900 Belmont Boulevard  
Nashville, TN 37212  
615.460.6463  
smoliraj@mail.belmont.edu

04/24/2006

---

\* Contact author

# **Implementing a Comprehensive Team Project in an Introductory Finance Class**

## *Abstract*

Team projects are a staple in many finance courses, however they can be vexed by peer participation issues. We propose slight alterations to team project case content, delivery and peer evaluation methodology that we think alleviate some peer participation problems. The team project we initiated in the introductory finance class requires students to analyze financial ratios, and calculate the WACC, EVA, and MVA for two companies, reinforcing course coverage of these topics. The case develops student's research skills by requiring them to find most of the source information for the project online. To address peer evaluation issues the team project was divided into sub components, the peer rating methodology was simplified, self evaluations were required, extreme variability in peer ratings required documentation, and team members had the option to dismiss a non-performing team member. Forcing team members to address participation issues beginning early in the semester and lasting for several iterations improved the quality of the team project and gave team members experience in group dynamics issues that they will most likely encounter in the work force.

# **Implementing a Comprehensive Team Project in an Introductory Finance Class**

## **Introduction**

Teaching an introductory finance class is a challenging endeavor in which the instructor must link numerous analytical techniques, models, and theories to “real world” applications. Additionally, the instructor should provide the necessary tools and skills desired by the business community. A partial list of these tools and skills includes a comprehensive grasp of business tools, written and oral communications skills, interpersonal skills, technical competence, the ability to work in teams, and leadership skills (Nunnally and Evans [2003], Collier and Wilson [1994], McMillen, White and McKee [1994], Dudley, Dudley, Clark and Payne [1995], Davis and Miller [1996]). One technique that incorporates these objectives is a team project. Assigning cases is a commonplace method of incorporating team projects in a course. Two important misgivings that both faculty and students have about team projects relate to the participants’ contributions and the “free rider” problem (Sherrard, Raaafat and Weaver [1994], and McCahon and Lavelle [1998]). Various participant evaluation methodologies have been proposed to resolve these and other issues surrounding the assessment of individual participation levels in team projects (McCahon and Lavelle, Holter [1994], Conway, Kember, Sivan, and Wu [1993], Cheng and Warren [2000]). This paper proposes a team project alternative to cases and addresses participant evaluation issues encountered by the authors when the project was implemented in the introductory finance course at the authors’ university.

## **Selected Literature**

Nunnally and Evans and Kester [1999] promote the utilization of cases in an introductory finance class. Cases in a finance setting provide students with an opportunity to incorporate class topics more fully in an integrated setting, improve and develop financial tools, and exposes students to the financial decision-making process. Nunnally and Evans present eight elements necessary for an effective comprehensive case: (1) there should be a clear objective, (2) students should have familiarity with the subject matter, (3) there should be a research component, (4) the cases should include both relevant and irrelevant information, (5) the case should reinforce skills used in the classroom, (6) the case should integrate skills from other business classes, (7) the case should require risk/reward analysis and decisions and (8) there should be clear assessment methodology. Elements 1 and 8 are instructor defined items, while the remaining items are endogenous to the case. Even though the project alternative we present is not a traditional case, it contains all of the objectives necessary for effective cases.

In addition to meeting the above criteria, a team project must address individual participation issues. Sherrard, Raaafat and Weaver, and McCahon and Lavelle show that a primary reservation for both faculty and students in team projects is evaluation of the contribution of the participants. Given the team nature of the work, it is always possible for the “free rider” problem to exist wherein the final student grade is not commensurate with the amount or quality of work produced by the individual. One way to alleviate this concern is to include peer evaluation as part of the final project grade.

Faculty often have misgivings about the peer evaluation process due to student evaluation biases based on non-performance factors (e.g. gender, friendship). Students complain about the process (grading standards are arbitrary, irrelevant and unreasonable) and shortcomings in their fellow students (inadequate topic knowledge, incapable peer evaluators, scheduling problems, and uneven team member contributions). Given the importance of teamwork in the workplace, concerns about peer evaluations should not override the decision to incorporate a team project in an introductory finance course. Properly constructed peer evaluations can provide a more complete evaluation of individual student performance and help improve team performance.

The use of student peer evaluations to rate contributions of team members can follow various formats. McCahon and Lavelle assigned a team project in their interdisciplinary Total Quality Management classes (business and engineering students). At the completion of the project, each team member gave a single numerical rating (which could range from 0 to 110 percent) to the other members. To compute an individual student project grade (which was 44% of the student's final grade) the average peer rating was multiplied by the team project grade.

Holter used a more extensive peer evaluation that contained several factors including: follow up, documentation, quality of decision making, communications skills, neatness, and the ability to integrate the material. These factors were evaluated when the case was completed, then summed, and comprised the peer assessment portion of the course grade. The team project in Holter's class accounted for 40 percent of the individual course grade; 30 percent was derived from the case that formed the basis of the team project and the remaining 10 percent from peer evaluations.

To implement the peer evaluation in the individual grade, Conway, Kember, Sivan, and Wu suggest using a multiplicative grading formula. The process they suggest is to multiply the Individual Weighting Factor (IWF) by the group grade assigned by the instructor. The IWF is the individual student grade divided by the average group grade.

Cheng and Warren use the multiplicative grading formula with peer evaluations on a scale of 1 to 5 to determine how peer evaluations affect the final student grade. They find that while there is limited statistical evidence that the process affects the final student grade, the multiplicative weighting methodology results did change the final grade of one-third of the students in their study. This allows the final grade for each student to more fully and fairly reflect the effort and contribution made by each student.

The following sections describe the project and how it was implemented and team participation evaluated in the introductory finance class at the authors' university. The ratios and formulas used in the remainder of this paper are well understood by finance professors and may appear superfluous. They are included for two reasons: 1) to insure clarity of terminology, and 2) to demonstrate the linkage between concepts taught in core business finance courses and the criteria for effective team projects.

## **Project Description**

The team project consists of three sections: (1) a company/industry overview, financial ratio analysis, and the calculation of the company's weighted average cost of capital (WACC), (2) the company's economic value added (EVA), and (3) the company's market value added (MVA). The specific topical coverage of the project meets Nunnally and Evans 1<sup>st</sup> criteria (clear objective.) In addition, each section of the project is assigned

points. This, along with student participation evaluations (discussed below), meets Nunnally and Evans 8<sup>th</sup> criteria (clear assessment methodology).

The students are required to utilize the internet to retrieve company data and financial information. All calculations are to be done in EXCEL. The project is broken into components turned in at various points in the semester. Incorrect work can be revised and resubmitted to partially recoup lost points. Students grade each other on participation. The project facilitates four areas of learning: practical application of financial theory, web-based research, team work, and continuous improvement. The outline for the project, which is included on the class syllabus, is located in the Appendix. Commensurate with its importance, the project carries the same weight in overall course grading as an exam.

Each team is required to choose one company and its main competitor. The universe of companies is limited to publicly traded, non-financial companies that have been in existence for at least three years. Although companies based outside the United States are permitted, they are highly discouraged because of foreign exchange issues and different accounting procedures. Most students in an introductory finance class have had only one or two accounting classes, and the difference between Generally Accepted Accounting Principles practiced in the United States and the International Accounting Standards Board standards practiced throughout the rest of the world can be difficult for introductory students.

The company/industry overview allows students to become better acquainted with the companies and industry they will be analyzing. Many of the students are already familiar with at least one of the companies since they often choose companies where they

work or intern, consistent with Nunnally and Evans 2<sup>nd</sup> criteria (familiarity with the subject matter).

The ratio analysis requires the students to calculate the market-to-book, price/earnings, and DuPont ratios for the two most recent years. The market-to-book ratio is the market price per share divided by the book value per share. As such, it is a measure of shareholder value created for every dollar of shareholder investment. The price/earnings (PE) ratio is a market measure of the growth potential of the company. A stock with a high PE ratio is considered a growth stock, while a low PE ratio stock is considered a value stock.

The DuPont ratio utilized in this project is the three factor DuPont ratio, which is:

ROE = Profit margin × Total asset turnover × Equity multiplier

$$\text{ROE} = \frac{\text{Net income}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Total assets}} \times \frac{\text{Total assets}}{\text{Equity}} \quad (1)$$

Decomposing return on equity into these three components allows for an interpretation of how the company created its return on equity. To increase the ROE, the company can increase its operating efficiency (profit margin), increase its asset utilization (total asset turnover), or increase its financial leverage (equity multiplier). The financial ratio portion of this case integrates concepts taught in both accounting and finance courses and implements Nunnally and Evans 6<sup>th</sup> criteria (integration of skills from other business classes).

To obtain the fiscal year-end financial statements, students are directed to the Securities and Exchange Commission EDGAR archives on the internet ([www.sec.gov](http://www.sec.gov)). Having to find information on the internet fulfills Nunnally and Evan's 3<sup>rd</sup> criteria (there should be a research component). Having to sort through various SEC reports to find the companies 10K's, and searching the 10K's for the appropriate financial information reinforces Nunnally and Evans 4<sup>th</sup> criteria (the case should include relevant and irrelevant



information). Students are required to compute each of the ratios for the two prior fiscal years. This permits the ratios to be analyzed on a year-over-year basis, which is a time-trend analysis. Students are also required to compare each of the ratios, including the components of the Dupont ratio, across the two companies.

The WACC for a company is both the return the company must earn to satisfy all investors in the company and the required return for new projects with the same risk as the company. The calculation of the WACC is:

$$\text{WACC} = w_D R_D (1 - t) + w_P R_P + w_E R_E \quad (2)$$

where:

$R_D$ ,  $R_P$ , and  $R_E$  = the pretax cost of debt, the cost of preferred stock, and the cost of equity, respectively.

$w_D$ ,  $w_P$ , and  $w_E$  = the market value weight of debt, preferred stock, and equity, respectively.

$t$  = the corporate tax rate.

Weaver [2003] presents a methodology for calculating the WACC using information presented in the Value Line *Investment Survey*. Although his methodology is sound, it is not possible to implement without a subscription to Value Line. Additionally, the methodology we present requires students to use web-based research as part of the project and meets Nunnally and Evans 3<sup>rd</sup> criteria.

The calculation of the cost of debt can be complex because many companies have a large number of bond issues outstanding. To facilitate the calculation of the cost of debt, students are directed to the TRACE bond reporting system ([www.nasdbinfo.com](http://www.nasdbinfo.com)). TRACE reports trade information on over 75 percent of investment grade rated bonds. Students use

the YTM on the longest maturity bond reported for the company as a proxy for the pretax cost of debt. If a company's bonds are not listed by TRACE, students can use the average YTM for the appropriate credit rating reported in the St. Louis Federal Reserve FRED database (stls.frb.org). The average corporate tax rate can be calculated using recent financial statements, and this is used as a proxy for the marginal tax rate. The book value of debt is used as a proxy for the market value of debt since the book value and market value of debt are often similar.

Preferred stock has rarely been used for corporate financing in recent years, and quotes for preferred stock can be more difficult to find. If the company has preferred stock, the company's bond yield less one percent is used as a proxy for the cost of preferred stock, and the book value of preferred stock is used as a proxy for its market value.

Two basic methods to estimate the cost of equity are the dividend growth model and the Capital Asset Pricing Model (CAPM). The dividend growth model is:

$$R_E = \frac{D_1}{P_0} + g \quad (3)$$

where:

$D_1$  = the dividend to be paid next year.

$P_0$  = the current stock price.

$g = ROE \times b$  = the perpetual growth rate in dividends.

The dividend growth model is only applicable for companies with a constant growth rate in perpetuity, and therefore cannot be applied to a company experiencing nonconstant growth without supplementing the formula.

The information to estimate the cost of equity can be found on many financial websites. Our experience indicates that Yahoo! Finance (finance.yahoo.com) is a user

friendly financial website, and is recommended to students. Students are permitted to use information gathered from other sources if they wish.

The dividend growth rate for the company can be estimated with the sustainable growth rate equation, which is the company's return on equity times the retention ratio. Another method students are permitted to use to estimate the dividend growth rate is to use analysts' growth estimates for the company, which are freely available on many financial websites. One caveat concerning the stock price and dividend is that we felt it was important to make the students recognize that the WACC is an estimate based on the information at a particular point in time. To this end, the stock price used in this analysis is the closing stock price on the same date as the most recent fiscal year-end financial statements. This same stock price is utilized to calculate the market value of equity by multiplying by the number of shares outstanding.

The second method for estimating the cost of equity is the CAPM. The CAPM is expressed as:

$$R_E = R_F + \beta[E(R_M) - R_F] \quad (4)$$

where:

$R_F$  = the risk-free rate of interest.

$\beta$  = the beta of the stock, a measure of systematic risk.

$E(R_M) - R_F$  = the market risk premium, or the reward for bearing market risk.

The risk-free rate utilized in this project is the yield on a 10-year Treasury note, although this is not the only possible proxy for the risk-free rate. Bruner, et al [1998] find that in practice, about one-third of companies use the 10-year Treasury note, one-third of

companies use the 30-year Treasury bond, and the remainder use some other measure, including the Treasury bill rate. The beta estimate can be found on most financial websites. As an estimate for the market risk premium, students are directed to use the historic market risk premium calculated by Ibbotson and Associates, found in most corporate finance textbooks.

The dividend growth model and the CAPM are both methods of estimating the cost of equity. This is in contrast to the cost of debt, which can be observed with certainty. There are advantages and disadvantages to both cost of equity estimates. The dividend growth model is easy to understand and use. However, it is only applicable to companies that pay dividends, it is very sensitive to the estimated growth rate, it does not explicitly consider risk (although risk is implicitly considered in the required return), and it relies on historical information to predict the future. The CAPM approach to estimating the cost of equity is applicable to companies that do not have steady dividend growth, and therefore can be used for any company in practice. The main disadvantages are that it requires an estimate for both the market risk premium and the risk-free rate, and it also uses past information to predict the future.

In a perfect world, both estimates are applicable and result in similar answers. In practice, this is often not the case. Students are required to estimate the cost of equity using both models where applicable. They must then determine which, if either, of the two estimates are economically valid, and make a final determination of the company's estimated cost of equity.

The calculation of the cost of equity using various models, along with the calculation of the costs of preferred stock and debt, and the calculation of WACC are

exercises in risk/reward analysis. As such, these calculations meet Nunnally and Evans 7<sup>th</sup> criteria.

EVA and MVA are two financial concepts popularized by Stern Stewart & Co. EVA measures the economic rents created by the company. When evaluating net income, bondholders have already been paid the return they require. Even though net income may be positive, it does not measure whether the amount of net income was sufficient to give shareholders an adequate return.

The exact calculation of EVA used by Stern Stewart & Co. is proprietary, so students calculate a reasonable facsimile. The calculation of EVA used is:

$$\text{EVA} = (\text{Sales} - \text{Operating costs} - \text{Taxes}) \times (\text{Total capital} \times \text{WACC}) \quad (5)$$

Operating costs include fixed costs, variable costs, and depreciation. Interest expense is not included in operating costs since it is implicitly included in the WACC. Total capital is the total market value of debt plus the market value of equity.

MVA measures the shareholder wealth created by the company. The calculation of MVA used in this project is:

$$\text{MVA} = \text{Market value of equity} - \text{Book value of equity} \quad (6)$$

In the calculation of MVA, notice the relationship with the market-to-book ratio. If the MVA is positive, the market-to-book ratio is necessarily above one, and if the MVA is negative, the market-to-book ratio is below one. As such, the market-to-book ratio standardizes shareholder wealth created by the company, while MVA measures the creation of shareholder on an absolute basis.

The basic concept of the project is to reinforce financial concepts taught in the classroom by having the student teams apply the concepts to actual companies utilizing

web based research and spreadsheets. The calculation of financial ratios, the costs of debt, preferred stock, equity, WACC, EVA and MVA all reinforce skills learned in the classroom, meeting Nunnally and Evans 5<sup>th</sup> criteria. The analysis by students of the financial performance of the firms against each other and across time requires students to decide which is the better performing firm on a risk adjusted basis and meets Nunnally and Evans 7<sup>th</sup> criteria (risk/reward analysis and decisions).

### **Project Implementation**

In implementing the team project there were various issues that the authors encountered that impacted the peer evaluation process. The timing of the project as originally implemented created a difficulty for the students in that the project was due at the end of the semester. Using a traditional, text-based timing of topics meant that the WACC was not discussed in class until the end of the semester. This necessarily meant that the project could not be completed until the last week of the semester. To better accommodate the project, the topic sequence was altered so that the WACC was covered by mid-semester, giving students ample time to grasp the concepts and tools covered in the team project

A major change in the project was to assign parts of the project throughout the semester instead of the entire project one time. Even though students could work on parts of the project throughout the semester, few did. By assigning the project in smaller parts, student completion of each section throughout the semester was facilitated. Each section was due soon after the corresponding material was discussed in class. This provided students with an immediate application of the concepts presented.

Although each semester was slightly different due to the calendar, in general, each semester consisted of 15-week sessions. The team composition and companies the team would examine is due the third week of class. No two teams are permitted to examine the same companies, which reduces the possibility of collaboration among teams. In the fourth week of class, the overview of the companies and industry is due. In the seventh week of class, a ratio analysis of the companies is due. Finally, in the eleventh week of class the WACC, EVA, and MVA analysis is due. In addition to providing immediate application of classroom concepts, this approach proved to have several other advantages.

With separate sections due throughout the semester, continuous improvement was implemented in the project. As the teams turn in each section, the instructor grades the assignment and returns it to the team with comments and a grade. The comments range from discussing any incorrect calculations to ideas or concepts the team had not adequately addressed or discussed. The team is then given one week to address the concerns mentioned in the first draft. The revision of the section is resubmitted, along with the original submission, and the revision is graded.

When this revision process was originally implemented, if the team addressed all of the comments made on the original submission, all points lost in the original submission were added back to the team grade. This created a problem in that students were “gaming” the project. Teams would knowingly submit substandard work, allow the instructor to grade the section and make comments, and then address the comments made on the original submission. This allowed the team to receive perfect grades with minimal effort. Although this practice was not widespread among the teams, it did occur. To address this problem, the grading was altered so that the team could only recover one-half of the points

lost on the original submission. This encourages a more diligent effort on the first draft of each section.

## **Peer Evaluation**

In order for a team project to achieve its goals of increasing students' knowledge and communications skills, an appropriate peer evaluation process must be utilized. A good peer evaluation process addresses the free rider problem. Since the project contains multiple sections, rating each section of the project is preferable to a single rating at the end of the project. To this end, peer evaluations are completed by each student for each section when the final version of that section is submitted for grading by the instructor. Each student is required to evaluate his/her own contribution to the project.

The peer evaluation form originally implemented was a multi-dimensional evaluation form. The dimensions rated by each member were: the willingness of the individual to carry out assigned jobs, the success of individual in meeting schedules and deadlines, the cooperation of the individual in functioning as a team member, the quality of the individual's work, and the individual's overall contribution to project. Since the total peer evaluation grade was utilized in the calculating the grade for the section, students often gave the final grade first, and back engineered the dimensional grades to make them total the final grade.

Because of this problem a simpler rating system was implemented. The total points assigned by each student are equal to 100 times the number of members in the team. For example, if the team contains three members, 300 points are available for distribution. If points are deducted from one team member for substandard performance, the points are



given to another team member. For example, if one student is assigned a 90, each of the other two team members could be assigned 105 points, or one team member could be assigned 100 points and the other team member could be assigned 110 points.

The final grade for each section of the project is computed by multiplying the average peer evaluation grade by the case grade assigned by the instructor. This is similar to the multiplicative weighting factor suggested by Conway, Kember, Sivan, and Wu [1993]. This process allows the peer assessment to be usefully and meaningfully included in the final grade for each student.

The peer evaluation for each section of the project did create a problem in that some students could award extra contribution points to their "buddies" at the expense of students who were doing the work. Each peer evaluation is signed by the evaluator. No explanation is required for evaluations between 80 and 120. If the evaluation of a team member falls outside this range, a written explanation of the deficiency or superior performance is required. The instructor always reserves the right to adjust any peer evaluation.

Another problem that was resolved by using peer evaluations for each section was that some teams would farm out sections of the project. A team member, generally a student who was doing poorly in the class, could do a poor job on a section due late in the semester, penalizing the other team members. Signed peer evaluations on each section forced team members to begin evaluating each other's contributions earlier in the semester.

An interesting phenomenon observed by the authors was the self evaluations. There were students who gave themselves poor self evaluations. Although these less than perfect evaluations were generally in the 90s, several students gave themselves failing grades. One

student, who gave herself a 50 on the self evaluation, reported “I really didn’t do the work.” The number of self evaluations below 100 percent was less than five percent.

The potential free rider problem inherently exists in any team project. Consistent with Holter, we implemented a process to allow team members to warn an egregious free rider through a Notice of Disassociation. If a Notice of Disassociation is given to a team member, the instructor meets with the offending individual to discuss the problem. If the problem still exists, the offending team member is forced to complete the case on his/her own. This procedure is subject to faculty approval. We should note that since this policy was implemented, no team member has been dismissed from a team.

Separating the team project into sub components, simplifying the peer rating methodology, requiring self evaluations, mandating substantiation of extreme variability in peer ratings, and allowing team members to “boot out” a non-performing team member, in our opinion, put control of any reservations students may have had about peer assessment into their own hands. Faculty no longer have to adjudicate squabbles among team members. The resolution of faculty/student peer evaluation concerns, in turn, facilitated the implementation of team projects.

## **Summary and Conclusion**

A team project in an introductory finance class can be a daunting task, both for the student and for the instructor. Properly implemented, the team project can be a rewarding experience for students, allowing them to integrate several functional areas. When properly trained in teamwork, students practice the skills of collaboration desired by future employers. Additionally, their comprehension of class material is increased, and their

communications skills are improved. Peer assessment is the major reservation that both faculty and students have with team project. We propose slight alterations to case content and peer evaluations that we think beneficial.

The team project we initiated in the introductory finance class blends financial theory with practice. This research case requires students to analyze financial ratios, and calculate the WACC, EVA, and MVA for two companies, reinforcing course coverage of these topics. The research case requires students to find most of the source information for the project online. In the information age, students need as much exposure as possible to the wealth of information available at their fingertips. We were surprised to discover that many students did not have strong web search skills. A web-based research case helps improve this important skill.

Over the course of time, several modifications were made to the team project to address peer evaluation issues and make it more “user friendly” for students. The team project was divided into sub components, the peer rating methodology was simplified, self evaluations were required, extreme variability in peer ratings required documentation, and team members had the option to dismiss a non-performing team member. Forcing team members to address participation issues beginning early in the semester and lasting for several iterations facilitated the quality of the team project and gave team members experience in group dynamics issues that they will most likely encounter in the work force.

## References

- Bruner, Robert F., Kenneth M. Eades, Robert S. Harris, and Robert C. Higgins. 1998. Best practices in estimating cost of capital, *Financial Practice and Education*. Spring Summer. 1998.
- Cheng, Winnie and Martin Warren, 2000, Making a difference: Using peers to assess individual students' contributions to a group project. *Teaching in Higher Education*. 5(2). 243-255.
- Collier, B. and M. Wilson. 1994. Fortune 1,000 chief financial officers on business school education. *Financial Practice and Education* (Fall/Winter): 47-58.
- Conway, R., D. Kember, A. Sivan, and M. Wu. 1993. Peer assessment of an individual's contribution to a group project. *Assessment in Education*. 2(2): 165-185.
- Davis, B., and T. Miller. 1996. Job preparation for the 21<sup>st</sup> century: A group project learning model to teach basic workplace skills. *Journal of Education for Business* (November/December): 69-73.
- Dudley, S., L. Dudley, F. Clark and S. Payne. 1995. New directions for the business curriculum. *Journal of Education for Business* (May/June): 305-313.
- Holter, N. 1994. Team assignments can be effective cooperative learning techniques. *Journal of Education for Business* (November/December): 73-79.
- Kester, George W. 1999. An approach to integrating cases and lectures in the introductory finance course. *Journal of Financial Education*. (Fall): 98-104.
- McCahon, C. and J. Lavelle. 1998. Implementation of cross-disciplinary teams of business and engineering students for quality improvement projects. *Journal of Education for Business* (January/February): 150-157.
- McMillen, M. Cecilia, Judith White and Anne McKee. 1994. Assessing managerial skills in a social context. *Journal of Management Education* (May): 162-181
- Nunnally, Bennie H., and Michael D. Evans. 2003. Case teaching and the integrative process. *Journal of Financial Education*. (Spring): 75-86.
- Sherrard, W., F. Raaafat, and R. Weaver. 1994. An empirical study of peer bias in evaluations: Students rating students. *Journal of Education for Business* (September/October): 43-47.
- Weaver, Samuel C. 2003. Using Value Line to estimate the cost of capital and industry capital structure. *Journal of Financial Education*. (Fall): 55-71.

## APPENDIX

### FIN 3210 Project: Company financial analysis

The purpose of this project is to perform a comprehensive financial analysis of a firm and its main rival through the integration of various analytical techniques learned in the course. The final report must be no longer than 12 typewritten pages, not including tables or references (double-spaced, either 10 or 12 point font). You may choose any firms other than financial institutions that are publicly traded. Other sources of information include but are not limited to: the individual company web site, internet services through the library: Disclosure and ProQuest, and the internet: EDGAR ([www.sec.gov](http://www.sec.gov)), Yahoo! Finance ([finance.yahoo.com](http://finance.yahoo.com)), NASD Bond Info ([www.nasdbinfo.com](http://www.nasdbinfo.com)), the St. Louis Federal Reserve FRED database ([stls.frb.org](http://stls.frb.org)), and CNNfn ([cnnfn.com](http://cnnfn.com)). (A note on downloading internet resources using EDGAR as an example: Select Search EDGAR Archives, enter the name of the company you want to research in the searchable index key (e.g. Disney). All of the related documents filed with the SEC will be on a list. Select the document you want (usually the 10K). After you retrieve the document you can save it on diskette and use a word processor to highlight and print the information you want).

Team composition (minimum of 3 - maximum of 4 members), the firm being analyzed, the competitor and a bibliography of data sources chosen must be submitted in typed form to the instructor for approval no later than the date listed on the syllabus. No firm may be analyzed by more than one team. Financial information must be available for fiscal year-end 200X (usually 12/31/0X). You will perform the financial analyses listed below and answer the associated questions. NOTE: A bibliography of the references used to date should be included with each section. (The points associated with the question are in parentheses.)

The project format consists of 3 components. 1) A text (in WORD) that discusses and analyzes the topics of the project. 2) EXCEL appendices, which contain the required calculations. 3) Attachments that have the highlighted data used in your calculations (e.g. net income on the income statement).

1. **Company Overview** – (20 points) Give brief history of the companies. Describe the products/services offered. Comment on the status of the industry that the firms compete in (source: Standard & Poor's Net Advantage). Review the activities of the companies over the last 3 years. Comment on these activities. Items of interest in this section would be growth in sales, earnings per share and stock price. You should also include the ticker symbol for your companies. (This section should be no more than 3 pages.) NOTE: At this point you need to be sure that your companies have traded publicly for at least the last three years. It would be to your advantage if the companies are based in the United States. Sources of information for this section include but are not limited to: Standard & Poor's Net Advantage, Disclosure, ProQuest and EDGAR.

2. **Ratio Analysis** – (30 points) Using the firm's financial statements as a data source (source: EDGAR), and EXCEL as a calculation tool, for both companies, calculate the market-to-book, price/earnings, and DuPont ratios for the two most recent years. For the DuPont ratio, be sure to include the component sub-ratios. In the report, for each company year over year

you should explain what each ratio is measuring and why it changed. For each ratio calculated, comment on the performance of the firm that you chose relative to its competitor. For the DuPont ratio, be sure to comment on the effect of the sub-ratios on the overall ratio. This section should be an interpretation of the ratios, with data included in the text to support your observations.

For this section, you should also include an attachment with the financial statements for each company. For the financial statement attachment highlight each of the values you used in the calculation of the ratios. You should also include an EXCEL appendix with the calculations for each ratio.

**3. WACC, EVA and MVA – (50 points)** Using EXCEL, calculate the current weighted marginal cost of capital of both firms using the most recent fiscal year end capital structure (market values) as the target capital structure. To determine the current price and yield of bonds, use the highest maturity bond that is not callable found on NASD Bond Info as a representative bond. If a bond cannot be found in NASD Bond Info, use the Moody's Aaa and Baa Corporate Bond yields found at the St. Louis Federal Reserve FRED data base to estimate the cost of debt based on the companies current bond rating, and use the book value of long term debt (ignore current liabilities) for its market value. If the company has preferred stock, use the company's bond yield less one percent as a proxy for the cost of preferred stock, and use the book value of preferred stock as a proxy for its market value. For estimating the cost of equity, employ the Capital Asset Pricing Model (CAPM) and (if applicable) the dividend growth model. For the CAPM, beta can be found at Yahoo. Use the 10-year Treasury Note as a proxy for the risk free rate. The market risk premium for large company stocks can be found in chapter 10 of the text. For the dividend growth model, dividend information can be found in Standard & Poor's Net Advantage, earnings growth estimates can be found in Yahoo! Finance. To calculate the market value of equity use the stock price found in Yahoo! Finance coupled with the outstanding shares found in EDGAR. Supplemental sources of market information on stocks and bonds include Disclosure, CNNfn and the investor.reuters.com.

In your report you need to describe in detail how you derived the WACC for each company. You must comment on the similarities or differences in the WACC for the companies. Your appendix must include the WACC calculations and sub-calculations. The attachment must have the sources of data for your variables, with the variables that you used highlighted.

#### **EVA/MVA**

Using EXCEL, for both firms, calculate the Economic Value Added (EVA) for the most recent two years using the current WACC as the cost of capital for both years. In your report, explain any year over year changes in each firm's EVA. Comment on any similarities or differences between the two firm's EVA. Your appendix should include the EVA calculations. Your attachment must contain the financial statements that include the values that you chose for your calculations highlighted.

Using EXCEL, for both firms, calculate the Market Value Added (MVA) for the most recent two years. In your report, explain any year over year changes in each firm's MVA. Comment

on any similarities or differences between the two firm's MVA. Your appendix should include the MVA calculations. Your attachments should have the financial statements that include the values that you chose for your calculations highlighted.

You should also report the WACC, EVA and/or MVA from the Stern Stewart 1000 for the previous two years. (Note: The Stern Stewart 1000 is made available to the students.) Provide a table with your calculations and the matching Stern Stewart calculations. Comment on any differences between the WACC, EVA and MVA that you calculated compared to those computed by Stern Stewart.

When each section is turned in, it should include the previous sections. When you are done you should have a completed project to turn in as if you were turning in the project at one time. In other words, this is one project, not three individual projects.

A note on writing style. This paper is an executive summary. The reader should have sufficient data in the text to follow your analyses. The appendices should contain the supporting calculations. The attachments should have the data used to derive the calculations in the appendices. The reader should not have to go back and forth between the text, appendices and attachments to follow your analyses.